What Is Claimed Is:

- 1. An ultrasonic flow sensor, in particular for measuring the volumetric or mass flow of a fluid (1) flowing in a pipe (3) having at least one ultrasonic transducer (2a through 2n) for emitting and receiving ultrasonic signals (7, 9), characterized by
 - an array (2) of a plurality of ultrasonic transducers (2a through 2n) which is positioned on the pipe (3) and emits ultrasonic signals (7) which flow through the fluid (1),
 - a reflective surface (4) lying opposite the array (2), and
 - a receiver electronic system (6) which detects and evaluates an ultrasonic signal (9) reflected on the reflective surface (4) and received on the array (2).
- 2. The ultrasonic flow sensor as recited in Claim 1, wherein the transducer array (2) is pulse operated.
- 3. The ultrasonic flow sensor as recited in Claim 1 or 2, wherein an emission electronic system (5) is provided which can be used to activate the individual ultrasonic transducers (2a through 2n) individually and independently of one another.
- 4. The ultrasonic flow sensor as recited in Claim 3, wherein the individual ultrasonic transducers (2a through 2n) are operated in such a way that an ultrasonic wave (7) is generated having an essentially cylindrical, spherical, ellipsoidal, or otherwise curved wave front.
- 5. The ultrasonic flow sensor as recited in one of Claims 1 through 3, wherein the individual ultrasonic transducers (2a through 2n) are operated in such a way that an ultrasonic wave is generated having an essentially flat wave front.
- 6. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the transducer array is mounted flush with the inside wall of the pipe (3).
- 7. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the transducer array is mounted in the upper half or on the side of the pipe (3).

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- 8. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the reflective surface (4) is a part of the inside wall of the pipe, the shape of the reflective surface not being modified in relation to other pipe sections.
- 9. The ultrasonic flow sensor as recited in one of the preceding Claims 1 through 7, wherein the reflective surface (4) is provided on a bulge of the inside wall of the pipe.
- 10. The ultrasonic flow sensor as recited in one of the preceding claims, wherein a screening device (11) is provided close to the reflective surface (4).
- 11. The ultrasonic flow sensor as recited in one of the preceding claims, wherein the transducers (2a through 2n) of the transducer array (2) are activated in such a way that the wave (9) reflected on the reflective surface (4) impinges on the transducer array (2) in an essentially punctiform or linear manner.

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